

## Draft for consultation

*Note: this document is an advance review version of a pre-session document for the twenty-second meeting of the Subsidiary Body on Scientific, Technical and Technological Advice under agenda item 11 – Conservation and Sustainable Use of Pollinators*

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# The International Pollinator Initiative

## Plan of action 2018-2030

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### 1. Introduction

1. The conservation and sustainable use of pollinators have been addressed under the Convention on Biological Diversity (CBD) and the Food and Agriculture Organization of the United Nations (FAO) has been leading and facilitating the implementation of related decisions. During the UN Biodiversity Conference 2016, held in Cancun, Mexico, the 13th meeting of the Conference of the Parties to the CBD, through its decision XIII/15 paragraph 10, requested the Executive Secretary of the CBD, together with FAO, and in collaboration with other partners, to review the implementation of the International Initiative on the Conservation and Sustainable Use of Pollinators and prepare a draft updated and streamlined plan of action, based on the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) assessment and including the most recent knowledge, for consideration by SBSTTA at a meeting held prior to COP14.

2. The present plan of action was prepared jointly by FAO and the CBD Secretariat, in consultation with IPBES and other partners.

### 2. Context

3. Animal-mediated pollination is a regulating ecosystem service of vital importance for nature, agriculture, and human well-being. This service is provided by pollinators, namely by managed bees, wild bees, other insects such as flies, moths, butterflies and beetles, as well as vertebrates such as bats, birds and some primates. The IPBES assessment report on Pollinators, Pollination, and Food Production<sup>1</sup> underscores the role of pollinators in multiple respects. Nearly 90% of the world's wild flowering plant species depend, entirely or at least in part, on animal pollination. These plants are essential for the functioning of ecosystems through the provision of food, habitat and other resources to other species. More than three quarters of the leading food crops benefit to some extent from animal pollination, with an estimated annual market value of US\$235-\$577 billion in 2015. In addition to that, even auto-pollinated crops like soybean can benefit from enhanced productivity by animal pollinators<sup>2</sup>.

4. Data on the status and trends of wild pollinators are limited and geographically largely restricted to some regions of North Western Europe and North America, where strong declines of some pollinator taxa during the last decades have been observed<sup>3</sup>. Risk assessments of the status of wild insect pollinators such as wild bees and butterflies according to the Red List assessments of the International Union for Conservation of Nature (IUCN) are geographically similarly restricted but indicate high levels of threat with proportions of threatened species often exceeding 40%<sup>4</sup>.

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<sup>1</sup> IPBES (2016). Assessment report on Pollinators, Pollination, and Food Production

[https://www.ipbes.net/sites/default/files/downloads/pdf/individual\\_chapters\\_pollination\\_20170305.pdf](https://www.ipbes.net/sites/default/files/downloads/pdf/individual_chapters_pollination_20170305.pdf)

<sup>2</sup> Milfont, M., Rocha, E.E.M., Lima, A.O.N. and Freitas, B. M. (2013). Higher soybean production using honeybee and wild pollinators, a sustainable alternative to pesticides and autopollination *Environ. Chem. Lett.* 11:335.

<https://doi.org/10.1007/s10311-013-0412-8>

<sup>3</sup> IPBES (2016)

<sup>4</sup> ibid002E

5. At the same time as global agriculture has become increasingly pollinator-dependent, much of this dependence is linked to wild pollinators<sup>5</sup>. Beyond marketable products, pollinators provide non-monetary benefits for human well-being as sources of inspiration for arts and crafts, religion, traditions or recreational activities.

6. Many of the main direct drivers of pollinators decline have remained the same as originally identified by CBD in its first decision on pollinators<sup>6</sup>: habitat fragmentation and land use change, agricultural and industrial chemicals, parasites and diseases, and invasive alien species. In addition to those, the importance of other direct drivers has emerged, such as climate change, intensive agricultural practices and monoculture, as well indirect drivers like herbicides. Other important findings include the evidence of lethal and sublethal effects on bees caused by pesticides, and the understanding that the combination of different drivers can increase the overall pressure on pollinators.

7. In the broader context, pollinators can be considered an important link for agriculture, forestry, biodiversity, food security, food safety and nutrition. Pollinators can be a transformative agent by fostering sustainable practices among agricultural sectors. Pollinator-friendly measures have the potential to increase productivity and sustainability and guarantee the long-term viability and profitability of food production systems.

### **3. Objectives and purpose**

8. The overall objective of this plan of action is to promote coordinated action worldwide to safeguard wild and managed pollinators and promote the sustainable use of pollination services, which is a recognized vital ecosystem service for agriculture as well as for the functioning and maintenance of the health of ecosystems.

9. The purpose of the present plan of action is to help Parties, other Governments, relevant organizations and initiatives to implement Decision XIII/15<sup>7</sup>, in alignment with the Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets and the 2050 Vision for Biodiversity, the FAO's Strategic Framework 2010-2019, and the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs).

10. The specific objectives of this action plan are to support Parties, other Governments, relevant organizations and initiatives to:

- Enable policy coherence and strategies within and across sectors;
- Implement pollinator-friendly practices at field level;
- Increase awareness, knowledge sharing and improve valuation tools for decision making;
- Foster research, assessment and monitoring.

### **4. Background**

11. In October 1998, the Workshop on the Conservation and Sustainable Use of Pollinators in Agriculture was held in São Paulo, Brazil. It resulted in the São Paulo Declaration on Pollinators, which was submitted by the Government of Brazil to the fifth meeting of the Subsidiary Body for Scientific, Technical and Technological Advice (SBSTTA) to the Convention on Biological Diversity.

12. In May 2000, the Conference of Parties (COP) to the Convention on Biological Diversity established an International Initiative for the Conservation and Sustainable Use of Pollinators<sup>8</sup> (also known as the International Pollinators Initiative) as a cross-cutting initiative within the programme of work on agricultural biodiversity. FAO was invited to facilitate and coordinate the initiative in cooperation with other relevant organizations.

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<sup>5</sup> *ibid.*

<sup>6</sup> COP decision V/5 - Agricultural biological diversity: review of phase I of the programme of work and adoption of a multi-year work programme <https://www.cbd.int/decision/cop/?id=7147>

<sup>7</sup> COP decision XIII/15 - Implications of the IPBES assessment on pollinators, pollination and food production for the work of the Convention <https://www.cbd.int/doc/decisions/cop-13/cop-13-dec-15-en.doc>

<sup>8</sup> COP decision V/5 - Agricultural biological diversity: review of phase I of the programme of work and adoption of a multi-year work programme <https://www.cbd.int/decision/cop/?id=7147>

13. In April 2002, through decision VI/5, COP adopted and decided to periodically review, as appropriate, the plan of action for the International Initiative for the Conservation and Sustainable Use of Pollinators.

#### **4.1 International Pollinator Initiative and the Plan of Action 2000-2015**

14. This first phase of the International Pollinators Initiative focused on (i) monitoring pollinator decline, its causes and its impact on pollination services; (ii) addressing the lack of taxonomic information on pollinators; (iii) assessing the economic value of pollination and the economic impact of the decline of pollination services; (iv) promoting the conservation, restoration and sustainable use of pollinator diversity in agriculture and related ecosystems.

15. With funding provided by donors such as the Global Environment Facility (GEF) and the International Fund for Agricultural Development (IFAD) as well as the governments of Norway and the Netherlands, the Initiative has promoted a range of contributions of individuals and organizations worldwide.

16. FAO provided regular reports to the Convention on Biological Diversity (in 2008<sup>9</sup>, 2012<sup>10</sup> and 2014<sup>11</sup>), summarizing contributions from around the world and highlighting key efforts and outputs of the FAO's Global Action on Pollination Services for Sustainable Agriculture<sup>12</sup>. FAO has developed methods and protocols for monitoring pollinators and pollination (see Annex) in partnership with other organisations in Argentina, Brazil, China, Colombia, France, Ghana, India, Indonesia, Kenya, Nepal, Norway, Pakistan, South Africa and Zimbabwe. Through the global action, work has advanced the development of risk assessment methods of pesticides for different bee taxa with partners in the Netherlands, Brazil and Kenya.

17. A policy analysis was conducted and several reports and guidance manuals were written and published, namely on pollinator safety in agriculture, climate change impacts on pollinators, weed management for benefiting pollinators, apple pollination, and economic and participatory socio-economic valuation of pollinator-friendly practices. Taxonomic knowledge on wild bees was advanced through the development of an on-line key to the bee families of the world and a global survey on honey bee health from 104 countries was conducted. The main outcomes have also been compiled in two edited books<sup>13</sup>.

18. The International Pollinators Initiative has catalysed the development and implementation of national and regional pollinator initiatives such as: African Pollinator Initiative; Oceania Pollinator Initiative; European Pollinator Initiative; North American Pollinator Protection Campaign; Brazilian Pollinators Initiative; Iniciativa Colombiana de Polinizadores; Pollinator Partnership Action Plan (USA); Canadian Pollination Initiative; The National Pollinator Strategy for bees and other pollinators in England; All-Ireland Pollinator Plan; Plan national d'actions «France Terre de pollinisateurs» pour la préservation des abeilles et des insectes pollinisateurs sauvages; Dutch Pollinator Strategy, and the Swiss National Action Plan for Bee Health (see Annex).

#### **4.2 IPBES and related assessments**

19. The IPBES assessment report on Pollinators, Pollination, and Food Production<sup>14</sup> synthesized the current knowledge on pollinators and animal pollination as a regulating ecosystem service underpinning food production, ecosystem functioning and human well-being.

20. The assessment, conducted by experts from all regions of the world, and its Summary for Policymakers<sup>15</sup>, focuses on: the functional role, economic and non-monetary value of wild and

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<sup>9</sup> <https://www.cbd.int/doc/meetings/cop/cop-09/information/cop-09-inf-24-en.pdf>

<sup>10</sup> <https://www.cbd.int/doc/meetings/cop/cop-11/information/cop-11-inf-29-en.pdf>

<sup>11</sup> <https://www.cbd.int/doc/meetings/cop/cop-12/information/cop-12-inf-37-en.pdf>

<sup>12</sup> FAO's Global Action on Pollination Services for Sustainable Agriculture <http://www.fao.org/pollination/en/>

<sup>13</sup> Gemmill-Herren B. (ed.) 2016. Pollination Services to Agriculture. Routledge, 292 pp. and Roubik D. (ed.), 2018. The Pollination of Cultivated Plants: A Compendium for Practitioners.

<sup>14</sup> IPBES (2016). The assessment report on pollinators, pollination and food production.

[https://www.ipbes.net/sites/default/files/downloads/pdf/individual\\_chapters\\_pollination\\_20170305.pdf](https://www.ipbes.net/sites/default/files/downloads/pdf/individual_chapters_pollination_20170305.pdf)

managed pollinators; the status and trends of pollinators and pollination; the drivers of change; the impacts on food production and human well-being as a consequence of pollination declines and deficits; and the effectiveness of possible responses to the drivers.

21. Additionally, a complementary assessment report is being prepared by the CBD Secretariat in partnership with IPBES, the University of Reading, and a number of experts including experts from indigenous peoples and local communities, to summarize information on pollinators and pollination relevant to the conservation and sustainable use of biodiversity in all ecosystems, beyond their role in agriculture and food production.<sup>16</sup>

### **4.3 UN Biodiversity Conference 2016**

22. During the UN Biodiversity Conference 2016, held in Cancun, Mexico, the 13th meeting of the Conference of the Parties to the CBD, through its decision XIII/15, formally endorsed the key messages of the IPBES assessment, and recognized “the contribution of pollinators to the Sustainable Development Goals, especially Goals 2, 3, 8 and 15”. The decision also took note of the Coalition of the Willing on Pollinators<sup>17</sup>, established in the context of the “Cancun Commitments and Coalitions” to foster policy measures and innovative action toward protecting pollinators.

23. This Decision encourages Parties, other Governments, relevant United Nations and other organizations, as well as multilateral environment agreements and other stakeholders to guide their efforts to improve conservation and management of pollinators, address drivers of pollinator declines, and work towards sustainable food production systems and agriculture.

24. Parties also requested the Executive Secretary of the CBD to review the implementation of the International Initiative on the Conservation and Sustainable Use of Pollinators. The following proposal was prepared jointly by the CBD Secretariat and FAO, in consultation with IPBES and other partners, consistent with paragraph 10 of decision XIII/15.

## **5. Elements of the Plan of Action on the International Pollinators Initiative 2018-2030**

25. As a result of a range of projects developed worldwide; the comprehensive scientific assessment on pollinators, pollination, and food production of IPBES; and the engagement of various Parties, the successful achievements of the International Pollinators Initiative up to now provide the means and tools to guide the activities of this second plan of action towards implementation.

26. Information gathered in the first phase (2000-2015) supported the identification of main threats and the causes of pollinator decline, as well as the impacts of pollination services reductions on food production. In addition, taxonomic information on pollinators, the assessment of their economic value in various countries and crops were important steps not only to reinforce research and monitoring, but also to promote the conservation, restoration and sustainable use of pollinators.

26. The essential role of pollinators in food production, and the importance of their diversity and abundance in agricultural landscapes and related ecosystems are now well recognized. The updated Plan of Action builds on the first phase, and orients the emphasis toward mainstreaming pollination concerns in policy, developing and implementing measures on the ground to support the conservation and sustainable use of pollinators, addressing risks, building capacity and sharing knowledge on multiple levels to integrate pollination into farming and land use management decisions, and focusing collaborative research on emerging issues and prevailing needs.

### **Element 1: Enabling policies and strategies**

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<sup>15</sup> IPBES (2016). Summary for policymakers of the assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on pollinators, pollination and food production. [https://www.ipbes.net/sites/default/files/downloads/pdf/ipbes\\_4\\_19\\_annex\\_ii\\_spm\\_pollination\\_en.pdf](https://www.ipbes.net/sites/default/files/downloads/pdf/ipbes_4_19_annex_ii_spm_pollination_en.pdf)

<sup>16</sup> Prepared in response to decision XIII/15, paragraph 11, for consideration by the Subsidiary Body on Scientific, Technical and Technological Advice at a meeting held prior to the fourteenth meeting of the Conference of the Parties (CBD/SBSTA/22/Inf.X).

<sup>17</sup> Coalition of the Willing on Pollinators <http://promotepollinators.org/>

**Operational Objective:**

27. To support the implementation of coherent and comprehensive policies for the conservation and sustainable use of pollinators on local, national, regional and global levels, and to promote their integration into sectoral and cross-sectoral plans, programmes and strategies.

**Rationale:**

28. Pollinators are linked to many sustainable agricultural practices that make use of biodiversity for increasing agricultural productivity. Policies in favour of pollinators and their habitats, such as reduction of pesticides, biological pest control, and diversification of agricultural landscapes, may also benefit climate adaptation and other global measures. Pollination concerns are often a cross-cutting issue and policies should be designed to integrate pollinator and pollination considerations not only into the context of sustainable agricultural transitions, but also across sectors (e.g. forestry and health).

**29. Activities:****A1.1 Safeguard and promote wild and managed pollinators into the broader policy agendas focused on sustainable development**

- Develop and implement coherent and comprehensive policies across sectors and across cross-cutting issues (e.g. biodiversity, chemicals and pollution, poverty reduction, climate change, disaster risk reduction and combat desertification);
- Address linkages between human health, nutritious diets and pesticide exposure;
- Recognize pollinators and pollination as part of holistic farming systems and as an important agricultural input;
- Apply nature-based solutions and reinforce positive interactions (e.g. integrated pest management, on-farm diversification, ecological intensification);
- Support access to data and use of decision support tools, including land-use planning and zoning, to enhance the extent and connectivity of pollinator habitats in the landscape, with the participation of farmers and local communities;
- Support the development of capacity to provide guidance on pollinator and pollination best management practices by supporting the incorporation of nature-based solutions into extension services, farmer to farmer sharing, and farmer researcher networks;
- Develop and implement incentives for farmers and food system suppliers to encourage the adoption of pollinator-friendly practices (e.g. carbon sequestration measures that increase pollinators habitat; management of uncultivated areas for pollinator forage) and remove or reduce perverse incentives harmful to pollinators and to their habitats (e.g. pesticides subsidies; incentives for pesticide use as credit requirements from banks), taking into consideration the needs of farmers, beekeepers, land managers, indigenous people and local communities and other stakeholders;
- Promote recognition of pollinator-friendly practices and consequences on pollination services in existing certification schemes.

**A1.2 Implement effective pesticide regulation**

- Phase out existing harmful pesticides and agricultural chemicals, and avoid the registration of those that are harmful to pollinators;
- Improve risk assessment procedures for pesticides, pesticide-coated seed, and living modified organisms to take into account possible impacts and cumulative effects, including sublethal and indirect effects, on wild and managed pollinators (including eggs, larva, pupa and adult stages), as well as other non-target species;
- Work with regulators to implement tools such as the FAO Pesticide Registration Toolkit;
- Strengthen pesticide regulation authorities in their capacity to protect pollinators from agricultural chemicals;
- Develop and promote guidance on best practices for pesticide use (e.g. techniques, technology, timing, non-flowering crops, weather conditions) based on the International Code of Conduct on Pesticide Management of FAO and the World Health Organization;

- Develop and implement national and regional pesticide risk reduction strategies and promote alternative approaches (e.g. integrated pest management practices and biocontrol) to reduce or eliminate exposure of pollinators to harmful pesticides.

#### **A1.3 Protect and promote traditional knowledge**

- Protect and promote traditional knowledge, innovations and practices (e.g. hive design; stewardship of pollinator resources; traditional ways of understanding of parasite impacts) and support participatory identification of new species and monitoring);
- Protect established land rights and tenure for the conservation and sustainable use of pollinators.

#### **A1.4 Control the trade and movement of managed pollinators, and other trade-related impacts**

- Monitor the movement of managed pollinator species, sub-species and breeds among countries and within countries;
- Develop mechanisms to limit the spread of parasites and pathogens to managed and wild pollinator populations;
- Prevent and minimize the risk of introducing invasive alien species harmful to pollinators and to plant resources on which they depend.

### **Element 2: Field-level implementation**

#### **Operational Objective:**

30. To reinforce and support management practices that maintain healthy pollinator communities, and enable farmers, beekeepers, foresters, land managers and urban communities to harness the benefits of pollination services for their productivity and livelihoods.

#### **Rationale:**

31. In order to secure pollinator-friendly habitats and promote sustainable agroecosystems and pollinator husbandry, the direct and indirect drivers of pollinators decline need to be addressed in the field. Attention is needed not just to pollinator communities alone, but to the entire ecosystems. Landscape level measures address connectivity and the value of managing across landscapes and sectors. Improved management measures for pollinators include attention to bee husbandry, for honey bees and for other managed pollinators, and addressing the scope for including pollinator-friendly practices in certification schemes.

#### **32. Activities:**

##### **A2.1 Co-design (with farmers, beekeepers and land managers) and implement pollinator-friendly practices in farms and grasslands, including, *inter alia*:**

- Create uncultivated patches of vegetation and enhance floral diversity using mainly native species and extended flowering periods to ensure diverse, abundant and continuous floral resource for pollinators;
- Manage blooming of mass-flowering crops to benefit pollinators;
- Foster networks for exchanges of native seeds;
- Promote genetic diversity and its conservation within populations of managed pollinators;
- Promote extension services, farmer-to-farmer sharing approaches and Farmer Field Schools to exchange knowledge and provide hands-on education and empowerment of local farming communities;
- Diversify farming systems and the resulting food resources and habitats of pollinators through approaches like crop rotations, intercropping, home gardens, agroforestry, organic agriculture, and agroecology;
- Promote adoption of best practices for pesticide usage in the context of on-farm pollinator management (e.g. weed management strategies, integrated pest management, biocontrol, pesticide application timing, weather conditions, equipment calibration in order to reduce spray drift to off-field areas), and avoid or minimize any synergistic effects of pesticides

with other drivers that have been proven to pose serious or irreversible harm to pollinators;

- Promote best practices for climate-resilient agriculture with benefits for pollinators;
- Incorporate pollinator-friendly practices in existing certification schemes.

#### **A2.2 Address pollinator-friendly management and pollinator needs in forestry**

- Minimize deforestation and other threats that impact negatively on wild pollinators and on traditional bee keeping;
- Provide measures to capture, safeguard and transport beehives found inside wooden logs;
- Promote agroforestry and forestry systems to ensure heterogeneous habitats formed by native species, which offer diversified floral and nesting resources for pollinators.

#### **A2.3 Promote connectivity, conservation, management and restoration of pollinators habitats**

- Preserve or restore pollinator and habitat distributed in natural areas including forests, grasslands and agricultural lands, urban areas and natural corridors;
- Identify priority areas and measures, on global, regional, national and local levels for the conservation of rare and endangered pollinator species;
- Manage and restore grasslands and rangelands to enhance the availability of floral resources and nesting sites over time and space;
- Foster the establishment and pollinator-friendly management of nature protection areas and semi-natural areas, as well as other in-site options like the FAO's GIAHS;
- Promote initiatives in urban areas and service land along roads and railways to create and maintain green areas and vacant lands that offer floral and nesting resources to pollinators, and improve the relationship between people and pollinators by raising public awareness on the importance of pollinators for their daily lives.

#### **A2.4 Promote sustainable beekeeping and bee health**

- Reduce the dependence of managed pollinators on nectar-replacements, by promoting better husbandry through ecological means, and improving pollinator nutrition and immunity to pests and diseases;
- Reduce risks of infections and spread of pathogens, diseases and invasive alien species and reduce stress to managed pollinators associated with transportation of bee hives;
- Regulate and develop markets for managed pollinators;
- Develop measures to conserve genetic diversity in managed pollinators;
- Promote local and traditional knowledge related to innovative practices in management of honey bees, stingless bees and other managed pollinators.

### **Element 3: Civil society and private sector engagement**

#### **Operational Objective:**

33. To strengthen the capacities and promote education and public awareness of the value of pollinators and their habitats; improve valuation tools for decision making; and provide practical actions for the public to reduce and prevent pollinator decline.

#### **Rationale:**

34. Global agriculture has become increasingly pollinator-dependent and much of this dependence is linked to wild pollinators. The general public and the private sector, including food and cosmetic manufacturers and supply chains, have shown interest in protecting pollinators. Building on this growing interest, targeted actions need to be elaborated for civil society and the private sector on pollinators and their habitats conservation. Greater understanding of the vulnerability to pollination services losses, and the value of these services, will drive such initiatives.

#### **35. Activities:**

##### **A3.1 General public awareness raising**

- Engage in awareness raising with targeted key stakeholder groups, including farmers, extension workers, beekeepers, NGOs, and consumer organisations;
- Raise awareness of private sector, including food companies, cosmetic manufactures and supply chains, on the risks posed by pollination service decline to their business and the value of protecting pollinators;
- Build taxonomic capacity for the general public, including farmers and beekeepers, to identify and differentiate pollinators from pests, eventually contributing to data collection on pollinators;
- Support campaigns and activities to engage stakeholders in the conservation and sustainable use of pollinators, including celebrations on May 20<sup>th</sup>, the World Bee Day, established by the United Nations General Assembly<sup>18</sup>.

### **A3.2 General public actions**

- Promote educational activities with children and students on the importance of pollinators and ecosystem functions and services in their daily lives and propose ways to contribute to pollinators protection;
- Integrate pollinators and ecosystem services subjects into the curriculum of agriculture courses and universities programmes;
- Support citizen science projects for generating data on pollinators and pollination and raising appreciation among civil society for the role of pollinators;
- Foster learning about ecolabels, standards and the importance of choices for consumers that may benefit pollinators;
- Encourage network building activities, including through conferences,<sup>19</sup> dissemination of information on pollinators and pollination through web portals, social media and information networks that facilitate access to all relevant stakeholders.

### **A3.3 Business and supply chain engagement**

- Provide decision making tools to assist different stakeholders to assign values to pollinators and pollination, including non-monetary values;
- Develop modalities to incorporate pollinators and pollination in true cost accounting of agriculture and food production;
- Improve understanding amongst the private sector of the links between commercial products and the dependency of commodities (crops yields and quality) on respective type of pollinators;
- Share evidences of pollination deficit and the economic impacts to support business in identify potential risks, developing vulnerability assessments, and adopting pollinator-friendly measures;
- Develop and share pollinator friendly business cases for action.

## **Element 4: Monitoring, Research and Assessment**

### **Operational Objective:**

36. To monitor and to address gaps in knowledge, including information on the status and trends of pollinators, pollination and their habitats in regions with significant gaps in data.

### **Rationale:**

37. To address current knowledge gaps, a strategic focus is needed on monitoring, research and assessment of pollinators and pollination services. Academic and research bodies, and relevant international organizations and networks should be encouraged to undertake further research to address gaps in knowledge and to expand research to cover a wider variety of pollinators and to support coordinated global, regional, national and local monitoring efforts and build relevant capacity,

<sup>18</sup> United Nations General Assembly-72th session-A/C.2/72/L.32  
[https://www.worldbeeday.org/files/declaration/RESOLUTION\\_L32\\_World\\_Bee\\_Day.pdf](https://www.worldbeeday.org/files/declaration/RESOLUTION_L32_World_Bee_Day.pdf)

<sup>19</sup> E.g. a regular Conference for the initiative (possibly linked to Apimondia International Federation of Beekeepers' Associations <http://www.apimondia.com/>)

especially in developing countries, where there have been fewer research and monitoring efforts to date.

### **38. Activities:**

#### **A4.1 Monitoring**

- Develop, implement and enhance monitoring of the status and trends of all pollinators (abundance, diversity, health, populations and genetic diversity, nesting resources, pollinator friendly habitats and pollinator community structure), including modular standardized protocols and measures adapted to regions and countries;
- Further identify potential pollination deficits, with the regular and broad application of consistent and comparable protocols, as they apply to diverse farming systems throughout the world, and apply such protocols to identify the most effective intervention measures;
- Monitor agricultural land and land use change, to assess the most important threats to pollinators, taking into consideration a series of variables, such as pollinator health; levels of pollination service, interactions with crops, other plants and crop associated diversity; drivers of pollinators decline, and pollinator-friendly practices;
- Promote pollinators and pollination as indicators for the status of biodiversity, ecosystem health, agriculture productivity and sustainable development.

#### **A4.2 Research**

- Undertake research, including participatory research, on the socioeconomic as well as environmental implications of pollinator decline in the agricultural sector and related businesses, and work with farmer groups to co-design field level intervention measures;
- Facilitate the harmonization of protocols for research, data collection, management and analysis, including modalities for farmer researcher collaborative research;
- Promote and share further research to address gaps in knowledge, including the potential impacts of pesticides considering their possible cumulative effects, and of living modified organisms, under field conditions, including differential impacts on managed and wild pollinators, and on social versus solitary pollinators, and the impacts on pollination of crop and non-crop plants over the short and long term, and under different climatic conditions;
- Promote further research to identify ways to integrate pollinator-friendly practices into farming systems as part of efforts to improve yield quantity and quality and mainstreaming of biodiversity into agricultural systems;
- Promote further research to identify risks to pollination under climate change and potential adaption measures, including the potential loss of keystone species and their effect on ecosystem resilience;
- Promote further research and analysis on pest management as it interacts with pollination services, taking into account the impact of drivers of pollinator decline, to support development of more feasible and sustainable alternatives;
- Translate pollinator research and findings into recommendations for specific practices;
- Strengthen the synergies between scientific evidence, conservation practices and farmer-researcher community practices, and traditional knowledge to better support actions.

#### **A4.3 Assessment**

- Provide detailed national/regional/local datasets and visual maps to indicate the status of pollinators and pollination and crop-specific vulnerability to support decision-making;
- Assess the benefits of pollinators and pollination, taking into account the economic value to agriculture and private sector, including food companies, cosmetic manufactures and supply chains;
- Assess the benefits of conserving uncultivated areas in the farm lands to benefit pollinators and propose alternatives to deforestation;
- Increase understanding of consequences of pollinator decline in specific crops, agroecosystems and natural environments;

- Support the identification of pollinators in natural systems, and the interactions between pollinators and plants as well as the impacts of anthropogenic activities in the natural ecosystem.
- Address taxonomic assessment needs in different regions to design targeted strategies to fulfil the existing gaps;
- Increase taxonomic capacity to improve knowledge about pollinators, their status and trends; to identify drivers of changes in their populations; and to develop appropriate solutions;
- Promote regular assessments of conservation status of pollinator species from different taxonomic groups, update regularly national, regional and global red data books and red lists and elaborate action plans for the conservation and restoration of threatened pollinator species.

## **6. Actors**

39. This action plan is addressed to all relevant stakeholders, including national, subnational and municipal governments, Parties to the Rio Conventions and other multilateral environmental agreements, donor agencies, including GEF, the World Bank and regional and national development banks and banks with a significant portfolio of loans to rural development, private and corporate donors, as well as other relevant bodies and organizations, land owners and land managers, farmers, beekeepers, indigenous peoples and local communities, and civil society.

## **7. Scope and Scale**

40. The action plan aims to facilitate the implementation of actions to safeguard and promote pollinators and pollination services across agricultural landscapes and related ecosystems, including forests, grasslands, croplands, wetlands, savannas, coastal areas and urban environments. The activities can be applied at the, regional, national, subnational and local levels.

41. To facilitate the implementation of the plan of action, following the successful approach of the previous plan, FAO Headquarters is committed to ensure the coordination of the FAO's Global Action on Pollination Services for Sustainable Agriculture. This new phase is also intended to align the activities on pollination and pollinators more closely with FAO Regional and Country Offices in order to create synergies and provide broader support. The full implementation of the second phase of the IPI at national and regional levels will depend on the availability of resources.

## Annex - Supporting Guidance and Tools

42. There are extensive tools and guidance already available, particularly through partners actively working on integrating pollinators concerns into food systems and agriculture.

43. The list below presents further information and guidelines to support the implementation of the plan of action. Parties and all relevant stakeholders are invited to develop their appropriated solutions, taking into account not only the specific agro-climatic conditions, but also the biological, social, cultural and economic contexts in which their agricultural systems operate.

<b>CBD documents and the International Initiative for the Conservation and Sustainable Use of Pollinator</b>
<p>CBD (1998) Conservation and sustainable use of agricultural biological diversity – COP decision III/11  <a href="https://www.cbd.int/decisions/?id=7107">https://www.cbd.int/decisions/?id=7107</a></p> <p>CBD (2000) The International Initiative for the Conservation and Sustainable Use of Pollinators - COP decision V/5  <a href="https://www.cbd.int/decision/cop/default.shtml?id=7147">https://www.cbd.int/decision/cop/default.shtml?id=7147</a></p> <p>CBD (2002) Plan of Action for the International Initiative for the Conservation and Sustainable Use of Pollinators - COP decision VI/5, Annex 2 <a href="https://www.cbd.int/decision/cop/?id=7179">https://www.cbd.int/decision/cop/?id=7179</a></p> <p>FAO's Global Action on Pollination Services for Sustainable Agriculture <a href="http://www.fao.org/pollination/en/">http://www.fao.org/pollination/en/</a></p> <p>CBD (2016) COP decision XIII/15 - Implications of the IPBES assessment on pollinators, pollination and food production for the work of the Convention <a href="https://www.cbd.int/doc/decisions/cop-13/cop-13-dec-15-en.doc">https://www.cbd.int/doc/decisions/cop-13/cop-13-dec-15-en.doc</a></p>
<b>Codes, Protocols, Technical Guidance and Tools</b>
<p>FAO Pesticide Registration Toolkit  <a href="http://www.fao.org/pesticide-registration-toolkit/en/">http://www.fao.org/pesticide-registration-toolkit/en/</a></p> <p>FAO (2009) Guidelines for the Economic Valuation of Pollination Services at a National Scale  <a href="http://www.fao.org/3/a-at523e.pdf">http://www.fao.org/3/a-at523e.pdf</a></p> <p>FAO (2009). Tool for Valuation of Pollination Services at a National Level.  <a href="http://www.fao.org/pollination/resources/en/page=4">http://www.fao.org/pollination/resources/en/page=4</a></p> <p>FAO (2011) Protocol to Detect and Assess Pollination Deficits in Crops: a Handbook for Its Use  <a href="http://www.fao.org/docrep/013/i1929e/i1929e00.htm">http://www.fao.org/docrep/013/i1929e/i1929e00.htm</a></p> <p>FAO (2011) Potential Effects of Climate Change on Crop Pollination  <a href="http://www.fao.org/docrep/014/i2242e/i2242e00.htm">http://www.fao.org/docrep/014/i2242e/i2242e00.htm</a></p> <p>FAO (2012) Handbook For Participatory Socioeconomic Evaluation of Pollinator-friendly Practices  <a href="http://www.fao.org/3/a-i2442e.pdf">http://www.fao.org/3/a-i2442e.pdf</a></p> <p>FAO (2013) Policy Analysis Paper: Mainstreaming of Biodiversity and Ecosystem Services With A Focus On Pollination  <a href="http://www.fao.org/3/a-i4242e.pdf">http://www.fao.org/3/a-i4242e.pdf</a></p> <p>FAO (2013) Aspects Determining the Risk of Pesticides to Wild Bees: Risk Profiles for Focal Crops on Three Continents  <a href="http://www.fao.org/uploads/media/risk_pest_wildbees.pdf">http://www.fao.org/uploads/media/risk_pest_wildbees.pdf</a></p> <p>FAO (2014) Pollinator safety in Agriculture <a href="http://www.fao.org/3/a-i3800e.pdf">http://www.fao.org/3/a-i3800e.pdf</a></p> <p>FAO, WHO (2014) International Code of Conduct on Pesticide Management  <a href="http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/CODE_2014Sep_ENG.pdf">http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/CODE_2014Sep_ENG.pdf</a></p> <p>FAO (2015) Crops, Weeds and Pollinators: Understanding Ecological Interactions for Better Management.  <a href="http://www.fao.org/3/a-i3821e.pdf">http://www.fao.org/3/a-i3821e.pdf</a></p> <p>FAO, WHO (2016) International Code of Conduct on Pesticide Management. Guidelines on Highly Hazardous Pesticides  <a href="http://www.fao.org/3/a-i5566e.pdf">http://www.fao.org/3/a-i5566e.pdf</a></p> <p>FAO (2016) Protocol to Detect and Monitor Pollinator Communities Guidance for Practitioners  <a href="http://www.fao.org/3/a-i5367e.pdf">http://www.fao.org/3/a-i5367e.pdf</a></p> <p>FAO (2016) Mainstreaming Ecosystem Services and Biodiversity into Agricultural Production and Management in East Africa <a href="http://www.fao.org/3/a-i5603e.pdf">http://www.fao.org/3/a-i5603e.pdf</a></p> <p>FAO (2016) Mainstreaming Ecosystem Services and Biodiversity into Agricultural Production and Management in the Pacific Islands <a href="http://www.fao.org/3/a-i6505e.pdf">www.fao.org/3/a-i6505e.pdf</a></p> <p>FAO (2016) A Quantitative Approach to the Socio-Economic Valuation of Pollinator-friendly Practices: A Protocol for its Use. <a href="http://www.fao.org/3/a-i5481e.pdf">http://www.fao.org/3/a-i5481e.pdf</a></p> <p>FAO (2016) A Manual on Apple Pollination <a href="http://www.fao.org/3/a-i5527e.pdf">http://www.fao.org/3/a-i5527e.pdf</a></p>
<b>Assessment and Reports</b>
<p>IPBES (2016) Assessment report on Pollinators, Pollination, and Food Production  <a href="https://www.ipbes.net/sites/default/files/downloads/pdf/individual_chapters_pollination_20170305.pdf">https://www.ipbes.net/sites/default/files/downloads/pdf/individual_chapters_pollination_20170305.pdf</a></p> <p>FAO (2016) Pollination Services to Agriculture – Sustaining and Enhancing a key Ecosystem Service            Barbara Gemmill-Herren (ed). Routledge.</p>

Garibaldi, Lucas & Carvalheiro et al. (2016) Mutually beneficial pollinator diversity and crop yield outcomes in small and large farms. *Science*. 351. 388-391. <http://science.sciencemag.org/content/351/6271/388>

CBD and IPBES (2018) Wild Pollinator assessment and the role of pollinators beyond food production

#### **National and Regional Pollinator Initiatives**

African Pollinator Initiative: <http://www.fao.org/docrep/010/a1490e/a1490e00.htm>

Oceania Pollinator Initiative: <http://www.oceanicpollinators.org/>

European Pollinator Initiative: [http://ec.europa.eu/environment/nature/conservation/species/pollinators/index\\_en.htm](http://ec.europa.eu/environment/nature/conservation/species/pollinators/index_en.htm)

North American Pollinator Protection Campaign: <http://pollinator.org/nappc>

Brazilian Pollinators Initiative: [http://www.webbee.org.br/bpi/ibp\\_english.htm](http://www.webbee.org.br/bpi/ibp_english.htm)

Iniciativa Colombiana de Polinizadores: <http://www.uneditorial.com/pageflip/acceso-abierto/pdf/abejas-polinizadoras-ebook-40217.pdf>

Pollinator Partnership Action Plan (USA):

[https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Blog/PPAP\\_2016.pdf](https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Blog/PPAP_2016.pdf)

Canadian Pollination Initiative: <http://www.uoguelph.ca/canpolin/>

The National Pollinator Strategy: for bees and other pollinators in England:

<https://www.gov.uk/government/publications/national-pollinator-strategy-for-bees-and-other-pollinators-in-england>

All-Ireland Pollinator Plan: <http://www.biodiversityireland.ie/projects/irish-pollinator-initiative/all-ireland-pollinator-plan/>

Plan national d'actions «France Terre de pollinisateurs» pour la préservation des abeilles et des insectes pollinisateurs sauvages: [http://www.insectes.org/opie/pdf/3993\\_pagesdynadocs570e1d6156925.pdf](http://www.insectes.org/opie/pdf/3993_pagesdynadocs570e1d6156925.pdf)

Dutch Pollinator Strategy <https://www.rijksoverheid.nl/documenten/rapporten/2018/01/22/nationale-bijenstrategie-bed--breakfast-for-bees>

Swiss National Action Plan for Bee Health